

WHAT IS CLAIMED IS:

- 1 1. A method for communicating comprising:
2 controlling a user interface presented by a web browser comprising:
3 causing a web server to push an asynchronous message to the web
4 browser;
5 wherein the web browser presents a user interface change in response to the
6 asynchronous message.
- 1 2. The method of claim 1 further comprising:
2 generating the asynchronous message.
- 1 3. The method of claim 1 further comprising:
2 preparing to receive the asynchronous message.
- 1 4. The method of claim 3 wherein the preparing comprises:
2 causing the web browser to provide a wait request to the web server, the wait
3 request being associated with the web browser;
4 identifying a source of the asynchronous message; and
5 associating the wait request with the source, wherein the associating identifies
6 the web browser as a recipient of the asynchronous message.
- 1 5. The method of claim 1 further comprising:
2 causing the web browser to provide a wait request to the web server, the wait
3 request being associated with the web browser;
4 identifying a source of the asynchronous message; and
5 associating the wait request with the source, wherein the associating identifies
6 the web browser as a recipient of the asynchronous message.
- 1 6. The method of claim 1 further comprising:
2 causing the web browser to provide a wait request to the web server, the wait
3 request being associated with the web browser;
4 generating the asynchronous message, the asynchronous message identifying
5 the wait request, wherein the identifying identifies the web browser as
6 a recipient of the asynchronous message; and

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7 providing the asynchronous message to the web server.

1 7. The method of claim 6 wherein causing the web browser to provide the
2 wait request comprises:

3 downloading requesting instructions to the web browser, wherein
4 the downloading causes the web browser to execute the requesting
5 instructions.

1 8. The method of claim 6 further comprising:
2 storing a reference to a callback function with information from the wait
3 request; and
4 using the reference to call the callback function when the asynchronous
5 message is provided to the web server, wherein the callback function
6 pushes the asynchronous message.

1 9. The method of claim 8 further comprising:
2 providing the callback function with context information, the context
3 information identifying the web browser.

1 10. The method of claim 6 further comprising:
2 assigning the wait request to a connection between the web server and a
3 business process server; and
4 listening to the connection for the asynchronous message.

1 11. The method of claim 6 further comprising:
2 assigning the wait request to a session between the web server and a business
3 process server, the session being associated with a connection; and
4 listening to the connection for the asynchronous message for the session.

1 12. The method of claim 1 wherein causing the web server to push the
2 asynchronous message comprises:

3 calling a callback function associated with the web browser when the
4 asynchronous message is received, wherein the callback function
5 pushes the asynchronous message.

1 13. The method of claim 12 further comprising:

2 storing a reference to the callback function; and
3 using the reference for calling the callback function.

1 14. The method of claim 13 further comprising:
2 storing a second reference to context information, the context information
3 identifying the web browser; and
4 using the second reference for providing the context information to the
5 callback function.

1 15. The method of claim 1 wherein
2 the user interface change comprises at least one of a group consisting of the
3 following:
4 causing a first user interface object to move to visually capture a user's
5 attention;
6 causing a second user interface object to issue a sound to capture the
7 user's attention;
8 presenting a screen pop of data; and
9 bringing a web browser window to front of screen.

1 16. A method for communicating comprising:
2 causing a web server to push an asynchronous message to a web browser,
3 wherein
4 the web browser performs an action in response to the asynchronous
5 message.

1 17. The method of claim 16 wherein
2 the asynchronous message includes an action instruction to cause the web
3 browser to perform the action.

1 18. The method of claim 16 wherein the performing the action comprises
2 performing at least one of a group consisting of the following:
3 causing a first user interface object to move to visually capture a user's
4 attention;
5 causing a second user interface object to issue a sound to capture the user's
6 attention;

presenting a screen pop of data; and
bringing a web browser window to front of screen.

19. A method for communicating comprising:
establishing a first connection between a web browser and a web server;
establishing a second connection between the web server and a business
process server;
controlling a user interface presented by the web browser comprising:
registering the web browser with the business process server;
providing the web server with an asynchronous message to push to the
web browser, the providing being performed by the business
process server;
and
causing the web server to push the asynchronous message to the web
browser;
wherein the web browser performs a user interface change in response to the
asynchronous message.

20. A method for communicating comprising:
controlling a user interface presented by a web browser comprising:
registering the web browser as available to receive an asynchronous
message, wherein
the web browser is not blocked waiting for the asynchronous
message;
and
causing a web server to push the asynchronous message to the web
browser;
wherein the web browser presents a user interface change in response to the
asynchronous message.

21. A method for communicating comprising:
controlling a user interface presented by a web browser comprising:
causing the web browser to provide a wait request to a web server, the
wait request being associated with the web browser;

identifying a source of an asynchronous message;
 associating the wait request with the source, wherein the associating
 identifies the web browser as a recipient of the asynchronous
 message; and
 pushing the asynchronous message to the web browser;
 wherein the browser presents a user interface change in response to the
 asynchronous message.

22. A method for communicating comprising:
 controlling a user interface presented by a web browser comprising:
 causing the web browser to provide a wait request to a web server,
 wherein
 the wait request is associated with the web browser and a target
 from which an asynchronous message originates;
 generating the asynchronous message, the asynchronous message
 identifying the web browser as a recipient of the asynchronous
 message, the generating being performed by the target;
 providing the asynchronous message to the web server; and
 causing the web server to push the asynchronous message to the web
 browser;
 wherein the web browser presents a user interface change in response to the
 asynchronous message.

23. A computer program product comprising:
 controlling instructions to control a user interface presented by a web browser
 comprising:
 pushing instructions to cause a web server to push an asynchronous
 message to the web browser, wherein
 the web browser presents a user interface change in response to
 the asynchronous message;
 and
 a computer-readable medium for storing the controlling instructions and the
 pushing instructions.

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24. The computer program product of claim 23 further comprising:
 providing instructions to cause the web browser to provide a wait request to
 the web server, the wait request being associated with the web
 browser;
 identifying instructions to identify a source of the asynchronous message; and
 associating instructions to associate the wait request with the source, wherein
 the associating identifies the web browser as a recipient of the
 asynchronous message;
 wherein the computer-readable medium further stores the providing
 instructions, the identifying instructions, and the associating
 instructions.

25. The computer program product of claim 23 further comprising:
 request providing instructions to cause the web browser to provide a wait
 request to the web server, the wait request being associated with the
 web browser;
 generating instructions to generate the asynchronous message, the
 asynchronous message identifying the wait request, wherein the
 identifying identifies the web browser as a recipient of the
 asynchronous message; and
 message providing instructions to provide the asynchronous message to the
 web server;
 wherein the computer-readable medium further stores the request providing
 instructions, the generating instructions, and the message providing
 instructions.

26. The computer program product of claim 25 further comprising:
 storing instructions to store a reference to a callback function with information
 from the wait request; and
 using instructions to use the reference to call the callback function when the
 asynchronous message is provided to the web server, wherein the
 callback function pushes the asynchronous message;
 wherein the computer-readable medium further stores the storing instructions

8 and the using instructions.

1 27. The computer program product of claim 26 further comprising:
2 context providing instructions to provide the callback function with context
3 information, the context information identifying the web browser;
4 wherein the computer-readable medium further stores the context providing
5 instructions.

1 28. The computer program product of claim 25 further comprising:
2 assigning instructions to assign the wait request to a connection between the
3 web server and a business process server; and
4 listening instructions to listen to the connection for the asynchronous message;
5 wherein the computer-readable medium further stores the assigning
6 instructions and the listening instructions.

1 29. The computer program product of claim 23 wherein
2 the pushing instructions comprise:
3 calling instructions to call a callback function associated with the web
4 browser when the asynchronous message is received, wherein
5 the callback function pushes the asynchronous message;
6 and
7 the computer-readable medium further stores the calling instructions.

1 30. The computer program product of claim 29 further comprising:
2 reference storing instructions to store a reference to the callback function; and
3 reference using instructions to use the reference for calling the callback
4 function;
5 wherein the computer-readable medium further stores the reference storing
6 instructions and the reference using instructions.

1 31. The computer program product of claim 30 further comprising:
2 context storing instructions to store a second reference to context information,
3 the context information identifying the web browser; and
4 context using instructions to use the second reference for providing the context
5 information to the callback function;

wherein the computer-readable medium further stores the context storing instructions and the context using instructions.

32. The computer program product of claim 23 further comprising:
user interface changing instructions configured to perform at least one of a group consisting of the following:
cause a first user interface object to move to visually capture a user's attention;
cause a second user interface object to issue a sound to capture the user's attention;
present a screen pop of data; and
bring a web browser window to front of screen;
wherein the computer-readable medium further stores the user interface changing instructions.

33. A computer program product comprising:
controlling instructions to control a user interface presented by a web browser comprising:
registering instructions to register the web browser as available to receive an asynchronous message, wherein the web browser is not blocked waiting for the asynchronous message;
and
pushing instructions to cause a web server to push the asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message;
and
a computer-readable medium for storing the controlling instructions, the registering instructions, and the pushing instructions.

34. A computer system comprising:
a processor;
a memory, the memory storing instructions for executing on the processor, the

instructions comprising:
controlling instructions to control a user interface presented by a web
browser comprising:
pushing instructions to cause a web server to push an
asynchronous message to the web browser, wherein the
web browser presents a user interface change in
response to the asynchronous message.

35. The computer system of claim 34 wherein the instructions further
comprise:
providing instructions to cause the web browser to provide a wait request to
the web server, the wait request being associated with the web
browser;
identifying instructions to identify a source of the asynchronous message; and
associating instructions to associate the wait request with the source, wherein
the associating identifies the web browser as a recipient of the
asynchronous message.

36. The computer system of claim 34 wherein the instructions further
comprise:
request providing instructions to cause the web browser to provide a wait
request to the web server, the wait request being associated with the
web browser;
generating instructions to generate the asynchronous message, the
asynchronous message identifying the wait request, wherein the
identifying identifies the web browser as a recipient of the
asynchronous message; and
message providing instructions to provide the asynchronous message to the
web server.

37. The computer system of claim 36 wherein the instructions further
comprise:
storing instructions to store a reference to a callback function with information
from the wait request; and

5 using instructions to use the reference to call the callback function when the
6 asynchronous message is provided to the web server, wherein the
7 callback function pushes the asynchronous message.

1 38. The computer system of claim 37 wherein the instructions further
2 comprise:
3 context providing instructions to provide the callback function with context
4 information, the context information identifying the web browser.

1 39. The computer system of claim 36 wherein the instructions further
2 comprise:
3 assigning instructions to assign the wait request to a connection between the
4 web server and a business process server; and
5 listening instructions to listen to the connection for the asynchronous message.

1 40. The computer system of claim 34 wherein the pushing instructions
2 comprise:
3 calling instructions to call a callback function associated with the web browser
4 when the asynchronous message is received, wherein the callback
5 function pushes the asynchronous message.

1 41. The computer system of claim 40 wherein the instructions further
2 comprise:
3 reference storing instructions to store a reference to the callback function; and
4 reference using instructions to use the reference for calling the callback
5 function.

1 42. The computer system of claim 41 wherein the instructions further
2 comprise:
3 context storing instructions to store a second reference to context information,
4 the context information identifying the web browser; and
5 context using instructions to use the second reference for providing the context
6 information to the callback function.

1 43. The computer system of claim 34 wherein the instructions further

comprise:

user interface changing instructions configured to perform at least one of a group consisting of the following:
 cause a first user interface object to move to visually capture a user's attention;
 cause a second user interface object to issue a sound to capture the user's attention;
 present a screen pop of data; and
 bring a web browser window to front of screen.

44. A computer system comprising:

a processor;

a memory, the memory storing instructions for executing on the processor, the instructions comprising:

controlling instructions to control a user interface presented by a web browser comprising:

registering instructions to register the web browser as available to receive an asynchronous message, wherein the web browser is not blocked waiting for the asynchronous message;

and

pushing instructions to cause a web server to push the asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message.

45. A system comprising:

controlling means for controlling a user interface presented by a web browser comprising:

pushing means for causing a web server to push an asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message.

1 46. The system of claim 45 further comprising:
 2 providing means for causing the web browser to provide a wait request to the
 3 web server, the wait request being associated with the web browser;
 4 identifying means for identifying a source of the asynchronous message; and
 5 associating means for associating the wait request with the source, wherein the
 6 associating identifies the web browser as a recipient of the
 7 asynchronous message.

1 47. The system of claim 45 further comprising:
 2 request providing means for causing the web browser to provide a wait request
 3 to the web server, the wait request being associated with the web
 4 browser;
 5 generating means for generating the asynchronous message, the asynchronous
 6 message identifying the wait request, wherein the identifying identifies
 7 the web browser as a recipient of the asynchronous message; and
 8 message providing means for providing the asynchronous message to the web
 9 server.

1 48. The system of claim 47 further comprising:
 2 storing means for storing a reference to a callback function with information
 3 from the wait request; and
 4 using means for using the reference to call the callback function when the
 5 asynchronous message is provided to the web server, wherein the
 6 callback function pushes the asynchronous message.

1 49. The system of claim 48 further comprising:
 2 context providing means for providing the callback function with context
 3 information, the context information identifying the web browser.

1 50. The system of claim 47 further comprising:
 2 assigning means for assigning the wait request to a connection between the
 3 web server and a business process server; and
 4 listening means for listening to the connection for the asynchronous message.

1 51. The system of claim 45 wherein the pushing means comprise:
2 calling means for calling a callback function associated with the web browser
3 when the asynchronous message is received, wherein the callback
4 function pushes the asynchronous message.

1 52. The system of claim 51 further comprising:
2 reference storing means for storing a reference to the callback function; and
3 reference using means for using the reference for calling the callback function.

1 53. The system of claim 52 further comprising:
2 context storing means for storing a second reference to context information,
3 the context information identifying the web browser; and
4 context using means for using the second reference for providing the context
5 information to the callback function.

1 54. The system of claim 45 further comprising:
2 user interface changing means configured to perform at least one of a group
3 consisting of the following:
4 cause a first user interface object to move to visually capture a user's
5 attention;
6 cause a second user interface object to issue a sound to capture the
7 user's attention;
8 present a screen pop of data; and
9 bring a web browser window to front of screen.

1 55. A system comprising:
2 controlling means for controlling a user interface presented by a web browser
3 comprising:
4 registering means for registering the web browser as available to
5 receive an asynchronous message, wherein
6 the web browser is not blocked waiting for the
7 asynchronous message;
8 and

pushing means for causing a web server to push the asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message.

56. A signal embodied in a carrier wave comprising:
controlling instructions to control a user interface presented by a web browser comprising:
pushing instructions to cause a web server to push an asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message.

57. A signal embodied in a carrier wave comprising:
controlling instructions to control a user interface presented by a web browser comprising:
registering instructions to register the web browser as available to receive an asynchronous message, wherein
the web browser is not blocked waiting for the asynchronous message;

and
pushing instructions to cause a web server to push the asynchronous message to the web browser, wherein the web browser presents a user interface change in response to the asynchronous message.